

EXHIBIT C

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CONFIDENTIAL

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Cells used in this invention can be derived from any eukaryotic species and can be primary, secondary, or immortalized. Furthermore, the cells can be derived from any tissue in the organism. Examples of useful tissues from which cells can be isolated and activated include, but are not limited to, liver, kidney, spleen, bone marrow, thymus, heart, muscle, lung, brain, testes, ovary, islet, intestinal, bone marrow, skin, bone, gall bladder, prostate, bladder, embryos, and the immune and hematopoietic systems. Cell types include fibroblast, epithelial, neuronal, stem, and follicular. However, any cell or cell type can be used to activate gene expression using this invention.

The methods can be carried out in any cell of eukaryotic origin, such as fungal, plant or animal. Preferred embodiments include vertebrates and particularly mammals, and more particularly, humans.

The construct can be integrated into primary, secondary, or immortalized cells. Primary cells are cells that have been isolated from a vertebrate and have not been passaged. Secondary cells are primary cells that have been passaged, but are not immortalized. Immortalized cells are cell lines that can be passaged, apparently indefinitely.

In preferred embodiments, the cells are immortalized cell lines. Examples of immortalized cell lines include, but are not limited to, HT1080, HeLa, Jurkat, 293 cells, KB carcinoma, T84 colonic epithelial cell line, Raji, Hep G2 hepatoma cell line, A2058 melanoma, U937 lymphoma, and WI38 fibroblast cell line, somatic cell hybrids, and hybridomas.

Cells used in this invention can be derived from any eukaryotic species. To overexpress endogenous human proteins, human cells are used. Similarly, to over-express endogenous bovine proteins, for example bovine growth hormone, bovine cells are used.

The cells can be derived from any tissue in the vertebrate organism. Examples of useful tissues from which cells can be isolated and activated include, but are not limited to, liver, kidney, spleen, bone marrow, thymus, heart, muscle, lung, brain, immune system, testes, ovary, islet, intestinal, bone marrow, skin,

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protein, or a portion of the protein, encoded by the endogenous gene at levels higher than those normally found in the cell containing the endogenous gene.

The invention also encompasses cells made by any of the above methods. The invention encompasses cells containing the vector constructs, cells in which the vector constructs have integrated, and cells which are over-expressing desired gene products from an endogenous gene, over-expression being driven by the introduced transcriptional regulatory sequence.

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In preferred embodiments, the cells are immortalized cell lines. Examples of immortalized cell lines include, but are not limited to, HT1080, HeLa, Jurkat, 293 cells, KB carcinoma, T84 colonic epithelial cell line, Raji, Hep G2 or Hep 3B hepatoma cell lines, A2058 melanoma, U937 lymphoma, and WI38 fibroblast cell line, somatic cell hybrids, and hybridomas.